REVISED COMMUNITY AIR MONITORING PLAN

Barth Smelting Site
Newark, New Jersey

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Region 2
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1.0 Introduction

This Community Air Monitoring Plan (CAMP) is prepared for the removal action being implemented by the United States Environmental Protection Agency (EPA) at the Barth Smelting Site ("Site") located in Newark, Essex County, New Jersey. The Site includes the historic footprint of the former Barth Smelting Corporation facility (Block 2442, Lots 10, 11, 12) and the extent of lead contamination adjacent to the former facility, including a playground and grassy area adjacent to the community building on the Newark Housing Authority (NHA) Terrell Homes property located at 59-97 Chapel Street (Block 2442, Lot 1).

The Site is located within the Ironbound Section of Newark and is bounded to the north and west by the Passaic River and the Essex County Riverfront Park and to the east by Chapel Street. The southern portion of the Site is located in the Terrell Homes, a low income residential housing complex operated by the NHA. Approximately 784 people reside within the Terrell Homes and approximately two people reside within an apartment located on the 99 Chapel Street property.

The primary contaminant of concern on the Site is lead in dust. Historical operations on the Site included the primary smelting of zinc, the manufacturing of lead acid batteries, and the production of brass and bronze ingots and non-ferrous metals and alloys conducted by former industrial facilities. Analytical results of soil samples collected from the top two feet of soil on the Site indicated the presence of elemental lead at concentrations exceeding the EPA soil screening criteria of 400 parts per million (ppm) for residential properties. With the selected remedy for the Site being excavation and off-site disposal, the possibility exists that dust emissions from the site could contain elevated levels of lead if engineering controls are not properly implement.

This CAMP outlines the air quality monitoring procedures to be followed to protect the surrounding community from potential airborne contaminant releases during the implementation of the removal action at the Site. The CAMP is designed to protect residents, off-site pedestrians, businesses as well as on-site workers, and addresses the monitoring and sampling to be performed during intrusive and/or potential dust generating activities on-site.

1.1 Scope of Work

The duration of the removal action is projected to be from December 2, 2013 through April 11, 2014. The removal action work on Site will include the clearing and grubbing of site vegetation along with excavation and removal of soil containing elevated levels of lead. Clearing and grubbing will be done in a manner that will not disturb existing soils. Once the site clearing operations have been completed, EPA will proceed with the excavation activities. Lead contaminated soil will be excavated to a depth of one foot, and will be stockpiled on site. Soil stockpiles will be managed on site and dust suppression measures will be implemented for all stockpiles and excavation activities. Upon determination of waste profiles, stockpiled soils will be shipped off-site for disposal. Off-site shipment will involve the loading of tri-axle dump trucks which will be covered with a canvas tarp prior to leaving the site. The tarp will be secured to prevent dust from blowing out of the trucks. EPA estimates 700 cubic yards of soil will be excavated and shipped off-site for disposal.

1.2 Engineering Controls

Dust control measures, utilizing a water fog, will be the primary engineering control during all site intrusive activities. It will be implemented as necessary to prevent the generation of dust during excavation and handling operations. It will utilize non-potable water to wet the surfaces of all stockpiles, loading areas, access roads, and areas being excavated. If/when a vehicle or heavy equipment becomes impacted by contaminated soil, that vehicle or equipment will be decontaminated prior to being allowed off-site.

2.0 PERIMETER AND COMMUNITY AIR MONITORING

2.1 Air Monitoring Procedures

Air monitoring activities will be conducted in accordance with the procedures outlined within the EPA guidance document entitled, "Superfund Program Representative Sampling Guidance, Volume 2: Air (Short-Term Monitoring), Interim Final. 1995. EPA 540/R-95/140. (OSWER Directive 9360.4-09, PB 96-963206)." Appropriate activities as outlined within this document include the monitoring necessary to ensure appropriate Health & Safety levels for protection of on-site personnel and to ensure that residents are not exposed to Site-related constituents at concentrations above the action levels.

Real-time air monitors (e.g., DustTrak® Aerosol or equivalent) equipped with PM_{10} (particulate matter smaller than 10 microns in diameter) detectors will be used to monitor dust levels throughout the duration of the project. The monitors will be operated each workday and will measure PM_{10} dust concentrations in real time. The monitors are calibrated by the equipment manufacturer prior to being used at the Site. When the monitors are turned on daily, the instrument is self-calibrating. Once turned on, the monitors record dust concentrations on a 15-minute time-weighted average (TWA).

Particulate concentrations will be monitored continuously at the upwind and downwind perimeters of the exclusion zone. Locations will be determined each day based on current site activities and meteorological conditions. The particulate monitoring will be performed using DustTrak® Aerosol real-time monitoring equipment (or other equivalent unit) capable of measuring particulate matter less than 10 micrometers in size (PM_{10}) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The dust monitor will be equipped with an easy-to-read digital display that shows real-time concentrations in milligrams per cubic meter (mg/m^3) over a selected timeframe while data is simultaneously logged into memory. This instrument will be utilized to determine whether dust suppression measures are being adequately implemented on site. In addition, observations for fugitive dust migration will be visually assessed during all work activities. No air monitoring will be conducted during precipitation events. During precipitation events, excavation activities will be visually assessed for visible dust.

The monitoring stations will be checked periodically throughout each workday and when removal action activities are being performed to determine if dust levels have exceeded the action level. The results from these inspections will be manually recorded in the Site logbook. The data will be downloaded from the DustTrack® Aerosol at each of the monitoring stations at the end of each workday.

Meteorological data consisting of wind speed, wind direction, temperature, and barometric pressure will be recorded each day to position the monitoring equipments in appropriate upwind and downwind locations. All air monitoring data with time current activity and the locations of monitoring equipment will be recorded in the onsite files and will be available for review. Meteorological data will be acquired from either an on-site meteorological station or other online weather data service such as www.weather.com and/or www.wunderground.com.

Table 2-1: Air Monitoring Specifications

Direct Reading Instrument	Monitoring Location	Monitored Parameters
DustTrak® Aerosol or equivalent	• Perimeter monitoring • Workspace monitoring	Particulates

2.2 Basis for Establishing the Air Monitoring Action Levels

The community air monitoring program at the Site consists of a combination of perimeter and community monitoring for particulates (dust). In accordance with EPA National Ambient Air Quality Standards (NAAQS), PM_{10} levels will not exceed 150 µg/m^3 (0.15 mg/m^3) above upwind levels. This number is conservative and much lower than a site-specific action level of 610 µg/m^3 calculated using the highest concentration of lead found in the soil sampling data collected on the Terrell Homes property. The site-specific calculations are listed below.

The site-specific action level was calculated using the following equation, which calculates a corresponding PM_{10} action level for contaminated dust for worker exposure limit based on the Occupational Safety and Health Administration (OSHA) Action Level for Lead in Construction Standard and contaminant concentration on Site, then dividing the result by a safety factor.

$$PM_{10}\ \text{Action Level (mg/m}^3) = \frac{(10^6\ \text{mg/kg})(\text{OSHA Pb AL mg/m}^3)}{(\text{Concentration mg/kg})(\text{Safety Factor})}$$

Where:

- 10^6 mg/kg = conversion factor
- OSHA Action Level for Lead = 0.03 mg/m^3 (8-hour TWA)
- Concentration = highest concentration detected at the Site (9,800 milligrams per kilograms mg/kg])
- Safety Factor = degree of confidence of concentration, 1 being very confident and 10 being not confident

$$PM_{10}\ \text{Action Level (mg/m}^3) = \frac{(10^6\ \text{mg/kg})(0.03\ \text{mg/m}^3)}{(9{,}800\ \text{mg/kg})(5)}$$

$$= 0.61\ \text{mg/m}^3\ (610\ \mu\text{g/ m}^3)$$

The calculated action level assumes that the Site contaminant (Lead) will be present in airborne dust at the highest concentration detected in Site soils (9,800 mg/kg).

Table 2-2: Community Air Monitoring Action Levels for Particulates

Parameter	Zone Location and Monitoring Interval	Action Levels (Above Upwind)	Response Activity
Dust (PM_{10})	Perimeter and community monitoring locations with dust readings every 60 seconds, calculate 15-minute average during removal action activities.	< 75 µg/m^3	• Continue monitoring • Continue dust suppression measures
		≥ 75 µg/m^3	• Continue monitoring • Continue dust suppression measures • Notify field crew that early warning alert level has been reached • Temporarily suspend operations and evaluate dust suppression measures • Operations may continue if controls are appropriate and levels do not exceed 150 µg/m^3 above upwind levels at fence line
		≥ 150 µg/m^3	• Suspend operations and evaluate site activities and dust suppression measures • Operations may continue if controls appropriate and levels do not exceed 150 µg/m^3 above upwind levels at fence line • Analyze collected air sample for lead dust

An early warning alert level of 75 µg/m^3 (one half of the action level) above upwind levels has been established for the Site. If this alert level is reached, the field crew will continue work and dust suppression, and be notified that the work is generating dust at the early warning level. If dust levels exceed 75 µg/m^3, operations that are directly generating dust in the area of the impacted monitoring station will be temporarily discontinued until dust mitigation action can be performed. While it is planned to implement physical dust suppression controls throughout the Site operations, should elevated levels of dust be observed, operations that are generating visible dust will be temporarily discontinued until dust mitigation action can be performed

If the downwind PM_{10} particulate level is 75 µg/m^3 greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then work may temporarily cease and dust suppression measures will be re-evaluated to assure adequate implementation. Work may continue with dust suppression measures provided that downwind PM_{10} particulate levels do not exceed 150 µg/m^3 above the upwind level and no visible dust is migrating from the work area.

If after the initial re-evaluation of dust suppression techniques, downwind PM_{10} particulate levels are greater than 150 µg/m^3 above the upwind level, work will be stopped and a re-evaluation of intrusive activities initiated. Work will resume provided that dust suppression measures and/or other controls are successful in reducing the downwind PM_{10} particulate concentration to below 150 µg/m^3 of the upwind level and in preventing visible dust migration.

2.3 Non-working Hours

No monitoring will be conducted during non-working hours. No release of contaminants, above background levels is anticipated during non-working hours.

2.4 Equipment Maintenance and Calibration

All monitoring equipment will be maintained in accordance with applicable manufacturer recommendations. All pertinent data will be logged in a health and safety logbook (or equivalent) and maintained on site for the duration of site activities. All direct-reading instrumentation will be calibrated in accordance with manufacturer's instructions.

3.0 AIR SAMPLING

3.1 Air Sampling Procedures

In addition to real-time dust monitoring, each monitoring station will be equipped with a low flow air sampling pump (SKC, Gillian type or its equivalent) for sample collection. Air sampling for lead dust will be conducted on a daily basis during intrusive site activities. Sampling locations will be co-located with monitoring equipment. Samples will be collected and analyzed following the NIOSH 7300 (ICP-AES) method (or EPA/CLP equivalent).

Air sampling data will be utilized to support/verify particulate monitoring data and action levels. Air sampling data is not instantaneous or direct reading, and actual results may not be available for several days. EPA will be requesting standard turn-around-times for samples unless air monitoring data indicates that particulate concentrations exceed 150 $\mu g/m^3$ for that day. No air sampling will be conducted during precipitation events.

Table 3-1: NIOSH Method 7300 Sampling Procedures

Analyte	Sampling Method	Sampling Media	Recommended Flow Rate (Liters per Minute)*	Total Volume
Total Lead	NIOSH Method 7300	Mixed Cellulose Ester (MCE), 0.8 µm, 37 mm cassettes	1.0 to 4.0 Liters per minute	> 500 Liters

Note: *Actual flow rate will be determined in the field based on prevailing Site conditions. Humid conditions and precipitation events on Site may require air sampling activities for the day to be cancelled.

Each worker that enters the work zone will be equipped with a personal low flow air sampling pump (SKC PCXR 8 programmable pump or equivalent) for air monitoring and sample collection if needed. The work

zone activities include, but are not limited to: soil excavation and handling, road clearing/construction, as well as activities involving the loading and transportation of soil off-site. Dust control measures will be the primary engineering control during all Site activities.

As part of the Site Health and Safety Plan, additional occupational sampling for lead will be required for most site specific tasks. Analytical results from the sampling of different site specific tasks will also be evaluated to assure lead levels "on-site" are controlled to the best extent possible. That data will also assist with the assessment(s) of potential for off-site migration.

Table 3-2: Community Air Sampling Action Levels for Particulates

Parameter	Perimeter and Personal Monitoring Interval	Action Levels (Above Upwind)	Response Activity
Lead Dust	Daily perimeter and community monitoring locations	<15 µg/m^3	• Continue monitoring • Continue dust suppression measures
		≥ 15 µg/m^3	• Continue monitoring • Notify field crew that early warning alert level has been reached • Suspend all intrusive work • Re-evaluate dust suppression measures • Perform full evaluation of all site activities • Operations may continue once a remedy has been developed and implemented
		≥ 30 µg/m^3	• Suspend all operations until a remedy can be developed and implemented • Re-evaluate dust suppression measures • Perform full evaluation of all site activities • Operations may continue once a remedy has been developed and implemented
		≥ 50 µg/m^3	• All on site activities suspended • Evaluation to determine if additional off-site sampling and/or monitoring is required • All activities suspended until a remedy can be developed and implemented

The Occupational Safety and Health Administration (OSHA) has set a Permissible Exposure Level (PEL) of 50 µg/m^3 (0.05 mg/m^3) for lead dust. That is the level at which the OSHA Rule does not allow a "worker" to be exposed over an 8 hr period. The PEL is an 8 hr Time Weighted Average (TWA) sample.

OSHA has an "Action Level" for lead in air within the construction industry standard. That action level is set at 30 µg/m^3 (0.03 mg/m^3). If any perimeter lead sampling results exceeds 15 µg/m^3 (0.015 mg/m^3), or one-half the OSHA Action Level of 30 µg/m^3, all intrusive work on site will be shut down and a full

evaluation of the cause will be conducted. If the evaluation indicates on-site activities contributed to the elevated levels of lead in the sample results, a remedy will be developed and implemented prior to the commencement of work activities.

If the OSHA Permissible Exposure Limit (PEL) of 50 $\mu g/m^3$ is reached or exceeded, all on-site work activities will be stopped with an evaluation conducted on the need for any additional off-site sampling and/or monitoring. See Table 3-2 for the action levels established for the site.

3.2 Non-working Hours

No monitoring will be conducted during non-working hours. No release of contaminants, above background levels, is anticipated during non-working hours.

4.0 REPORTING OF AIR MONITORING RESULTS

4.1 Community Notification Procedures

The specific community notification procedures will be at the discretion of the EPA On-Scene Coordinator (OSC). The exact notification procedures will be developed based on the most feasible means of getting information to the surrounding community in an effective, useful, and timely manner.

4.2 On-Site Reporting Procedures

The Removal Support Team (RST) member on site will maintain a sample log and report airborne levels on a daily basis to the EPA OSC. Elevated results (above action levels) will be reported immediately to the EPA OSC so the appropriate engineering controls can be implemented to reduce airborne levels.

4.3 Reporting Procedures for Site Employees

Where personal sampling is performed, the Contractor will be responsible for informing employees and subcontractors of their monitoring results to comply with OSHA regulations and good occupational health practices.

4.4 Reporting Procedures for the Analytical Laboratory

Chain-of-custody procedures will be followed during sample handling and transport to the accredited laboratory. Areas sampled, tasks performed, duration, volumes, and laboratory results will be provided in a letter report format within two weeks of receiving the sample analysis results. Sampling and analysis will be performed in accordance with the appropriate EPA or OSHA method under the direction of the OSC.

4.5 Data Review and Interpretation

The general public will be able to review the captured data for the Site once the air monitoring data has been validated and finalized. All monitoring records will be maintained on site.